

I CLAIM:

1. A back supporting device for a motor vehicle seat, the motor vehicle seat having a driver seat portion disposed at a front portion of the motor vehicle seat, and a passenger seat portion disposed immediately behind the driver seat portion, the passenger seat portion having a front end, a rear end, and a width that is reduced gradually from the front end to the rear end, said back supporting device comprising:

a pair of hollow left and right sliding rails adapted to be disposed respectively and fixedly on two opposite sides of the passenger seat portion such that said left and right sliding rails extend from the front end of the passenger seat portion to the rear end of the passenger seat portion, said left and right sliding rails being spaced apart from each other by a distance along a transverse direction of the motor vehicle seat, the distance being reduced gradually from the front end of the passenger seat portion to the rear end of the passenger seat portion;

two slide units, each of which includes a slidable element received movably within a corresponding one of said left and right sliding rails, a connecting member disposed outwardly of the corresponding one of said left and right sliding rails and connected fixedly to said slidable element, and a positioning unit for retaining said slidable element at a selected one of a plurality

of positions relative to the corresponding one of said left and right sliding rails;

two supporting frames having upper ends, and lower ends that are connected respectively and pivotally to said connecting members of said slide units such that said upper ends of said supporting frames can rotate toward and away from each other; and

a back supporting mechanism including a backrest mounted to said supporting frames and adapted to be disposed above the passenger seat portion, and a frame-positioning device disposed between said backrest and said supporting frames to position said backrest on said supporting frames such that said slidable elements of said slide units are movable respectively and forcibly within said left and right sliding rails.

2. The back supporting device as claimed in Claim 1, further comprising two locking units for locking said slidable elements respectively and releasably within said left and right sliding rails so as to fix said backrest on the motor vehicle seat.
3. The back supporting device as claimed in Claim 2, wherein each of said left and right sliding rails is shaped as a rectangular tube, and has an outer sidewall that is formed with a longitudinal slot therethrough, said slidable elements being also shaped as rectangular tubes that are received respectively and fittingly

within said left and right sliding rails, each of said slidable elements having an outer sidewall that is formed with a threaded hole therethrough, said locking units being configured respectively as two lock bolts that extend respectively through said longitudinal slots in said left and right sliding rails and that engage respectively said threaded holes in said slidable elements so as to lock said slidable elements respectively and releasably within said left and right sliding rails, whereby, when said lock bolts are loosened, said slidable elements can move within said left and right sliding rails, respectively.

4. The back supporting device as claimed in Claim 1, wherein each of said left and right sliding rails has a top surface that is formed with a longitudinal row of positioning holes, each of said positioning units including:

a positioning member connected pivotally to a corresponding one of said connecting members of said slide units and having a fixed insert portion; and

a biasing unit for biasing said insert portion of said positioning member to engage a selected one of said positioning holes in the corresponding one of said left and right sliding rails so as to retain a corresponding one of said slidable elements at the selected one of the positions relative to the corresponding one of said left and right sliding rails.

5. The back supporting device as claimed in Claim 4,
wherein each of said positioning members is shaped as
a curved rod, and further includes a zigzag rod portion
connected pivotally to the corresponding one of said
5 connecting members of said slide units, each of said
insert portions of said positioning members being
shaped as an L-shaped rod and being connected fixedly
to an end of a corresponding one of said zigzag rod
portions, each of said biasing units of said positioning
10 units being configured as a coiled tension spring that
has two ends which are fastened respectively to the
other end of the corresponding one of said zigzag rod
portions and the corresponding one of said connecting
members of said slide units.

15 6. The back supporting device as claimed in Claim 1,
wherein said frame-positioning device includes:

an inverted U-shaped wall mounted fixedly on said
backrest and having two parallel rod-supporting wall
portions;

20 a horizontal rod extending through and connected
fixedly to said rod-supporting wall portions of said
inverted U-shaped wall, said upper ends of said
supporting frames being sleeved movably and rotatably
on said horizontal rod between said rod-supporting wall
25 portions of said inverted U-shaped wall; and

a coiled compression spring sleeved around said
horizontal rod between said upper ends of said

supporting frames so as to press said upper ends of said supporting frames respectively against said rod-supporting wall portions of said inverted U-shaped wall.

- 5 7. The back supporting device as claimed in Claim 6, wherein each of said upper ends of said supporting frames is C-shaped, and defines a curved groove, said curved grooves in said upper ends being located between said upper ends of said supporting frames, said
10 frame-positioning device further including two pressing elements, each of which is sleeved movably and rotatably around said horizontal rod between said upper end of a respective one of said supporting frames and said coiled compression spring, each of said pressing
15 elements having a semi-spherical outer portion that engages fittingly said curved groove in said upper end of the respective one of said supporting frames, and a circular tubular inner portion that is formed integrally with said semi-spherical outer portion, said
20 coiled compression spring having two ends that are sleeved respectively around said circular tubular inner portions of said pressing elements and that press respectively against said semi-spherical outer portions of said pressing elements.
- 25